

# PATENT ABSTRACTS OF JAPAN

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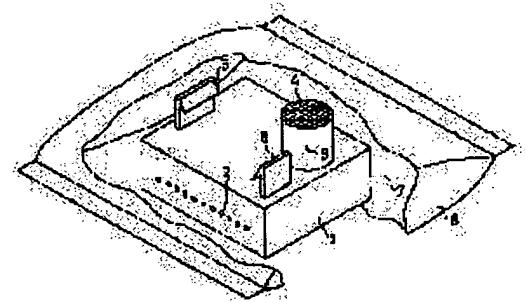
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## (54) TRANSPORTATION AND KEEPING OF INK JET RECORDING HEAD

### (57)Abstract:

**PURPOSE:** To prevent the generation of initial recording inferiority due to the fixing of recording ink and to dispense with a seal member for preventing the evaporation or leakage of ink and to also prevent the scattering of ink or the like.

**CONSTITUTION:** Until an ink jet recording head 1 is mounted on a recording apparatus, the ink jet recording head 1 is wrapped in a packing material 6 and, in such a state that the closed space around the ink jet recording head 1 is filled with inert gas in a volume ratio of about 80% or more, the ink jet recording head 1 is transported and kept. At this time, a seal member is not used in ink emitting orifices 2 or an ink supply port 3.



## LEGAL STATUS

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CLAIMS

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[Claim(s)]

[Claim 1] It is the transportation / storage method of the ink-jet recording head characterized by conveying and keeping it in the state of filling up with neither a liquid nor a solid-state the space portion filled with record ink in the transportation / storage method of the removable exchanged type ink-jet recording head used equipping an ink-jet recording device at the time of use of an ink-jet recording head until a recording device is equipped with an ink-jet recording head.

[Claim 2] It is the transportation / storage method of the ink-jet recording head characterized by conveying and keeping it in the state of connoting an ink-jet recording head by the packing material in the transportation / storage method of the removable exchanged type ink-jet recording head used equipping an ink-jet recording device until a recording device is equipped with an ink-jet recording head, and filling up with neither a liquid nor a solid-state the portion of the closed space by which the endocyst was carried out.

[Claim 3] The transportation / storage method of the ink-jet recording head according to claim 2 characterized by conveying and keeping it where inert gas is filled up with the ratio of 80% or more of abbreviation into the portion of the closed space as for which the endocyst was carried out by the packing material.

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**DETAILED DESCRIPTION****[Detailed Description of the Invention]**

[0001]

[Industrial Application] this invention relates to the transportation / storage method of the ink-jet recording head which is used for an ink-jet recording device and in which attachment-and-detachment exchange is possible.

[0002]

[Description of the Prior Art] An ink-jet recording device injects liquid ink from a recording head, and records a character etc. on media, such as paper, it is divided roughly into the gestalt of the ink-jet recording head, and there are two kinds of them, a permanent type and a disposable type.

[0003] As for the permanent type thing, the ink-jet recording head is already incorporated at the time of shipment of a recording device, a user does not need to exchange recording heads and a serviceman performs head exchange only within the time of failure etc. Many of these permanent type products gave the cap to the recording head, where a recording head is filled up with the state filled up with record ink, or preservation liquid at the time of transportation and storage, and it has taken the gestalt conveyed and kept.

[0004] Moreover, the recording head and the ink tank are united, and a disposable type thing exchanges united recording head and ink tank for a new thing, when the ink of an ink tank is lost. Since the ink tank and the recording head couple this disposable type product directly, it has taken the gestalt which conveys and keeps record ink in the state where it was filled up to the recording head.

[0005]

[Problem(s) to be Solved by the Invention] However, since it was the gestalt of a head simple substance when a user exchange type ink-jet recording head is used if it is in the transportation / storage method of the above conventional ink-jet recording heads, there were few amounts of ink, it was easy to cause ink fixing by evaporation, and there was a trouble that poor initial record occurred.

[0006] Moreover, when an exchanged type ink-jet recording head was filled up with ink, there was a trouble that closure members, such as a seal and a cap, were needed for the cure of antiflashing of ink and ink leakage prevention.

[0007] Furthermore, when a user exchanged an exchanged type ink-jet recording head, there was a trouble that the ink with which the ink-jet recording head is filled up dispersed.

[0008] It is made paying attention to the above troubles, and it is a thing, and generating with poor initial record by ink fixing can be prevented, and the closure member for ink evaporation or ink leakage prevention is unnecessary, and this invention aims at offering the transportation / storage method of an ink-jet recording head that scattering of ink etc. can also be prevented.

[0009]

[Means for Solving the Problem] In the transportation / storage method of the removable exchanged type ink-jet recording head used equipping an ink-jet recording device, it conveys and is made to keep the transportation / storage method of the ink-jet recording head of this invention in the state of filling up with neither a liquid nor a solid-state the space portion filled with record ink at the time of use of an ink-jet recording head until a recording device is equipped with an ink-jet recording head.

[0010] Moreover, an ink-jet recording head is conned by the packing material until a recording device is equipped with an ink-jet recording head, and convey and it is made to keep it in the state of filling up with neither a liquid nor a solid-state the portion of the closed space by which the endocyst was carried out.

[0011] Moreover, where inert gas is filled up with the ratio of 80% or more of abbreviation into the portion of the closed space as for which the endocyst was carried out by the above-mentioned packing material, convey and it is made to keep it.

[0012]

[Function] According to this invention, without ink fixing by evaporation of ink occurring by considering as the state where it is not filled up with liquids, such as record ink and preservation liquid, in an ink-jet recording head, the inside of transportation and a storage time until a recording device is equipped with an exchanged type ink-jet recording head by the user can obtain the record stabilized immediately after equipping a recording device, and does not need to attach the closure member the conventional vacuum evaporation prevention and for ink leakage prevention.

[0013] Moreover, since an ink-jet recording head is not filled up with the liquid at the time of wearing to a recording device, liquid scattering of ink, preservation liquid, etc. can also be lost.

[0014] Moreover, early record quality can be maintained more now at stability by filling up with inert gas of 80% or more of abbreviation the endocyst space formed by connoting an ink-jet recording head by the packing material.

[0015]

[Example] Drawing 1 is the perspective diagram showing the composition of one example of this invention, and shows the appearance of the removable user exchange type ink-jet recording head used equipping an ink-jet recording device.

[0016] In drawing 1, the click section for the filter for the ink feed hopper [ delivery / ink / the ] for an exchanged type ink-jet recording head and 2 supplying 1, and 3 supplying record ink from a non-illustrated ink tank and 4 taking the dust of an ink tank and 5 holding an ink tank, the packing material to which 6 connotes the ink-jet recording head 1, and 7 express the gas (gas) with which the portion of the closed space formed of this packing material 6 is filled up.

[0017] It is conveyed and kept in the state of filling up the space portion filled with record ink at the time of use of the ink-jet recording head 1 until a non-illustrated recording device is equipped with the above-mentioned ink-jet recording head 1, i.e., the portion of the closed space as for which the endocyst was carried out by the packing material 6 here, with neither liquids, such as record ink and preservation liquid, nor fixation. And it can be conveyed and kept only in the state where it connotated by the packing material 6, without attaching closure members, such as a seal to the ink delivery 2 and the ink feed hopper 3, and a cap, at this time.

[0018] For this reason, fixing of the record ink within the recording head conventionally generated by evaporation dryness of restoration ink is lost, generating with poor initial record (printing) can be prevented, and it becomes realizable [ the stable record quality ]. Closure members, such as a seal which was required in order to fill up the ink-jet recording head 1 with liquids, such as ink and preservation liquid, conventionally, and a cap, also become unable the need, a cost cut can be aimed at, and, moreover, scattering of ink etc. can also be prevented.

[0019] Moreover, when filled up with a gas 7 in the closed space as for which the endocyst was carried out by the above-mentioned packing material 6, the initial performance of the ink-jet recording head 1 can be further maintained to fitness over a long period of time by making the component into 80% or more of inert gas at the rate of a volume ratio.

[0020]

[Effect of the Invention] As mentioned above, until a recording device is equipped with an ink-jet recording head according to this invention Since conveyed and it was made to keep it in the state of filling up neither with a liquid nor a solid-state the space portion filled with record ink at the time of use of an ink-jet recording head Generating with poor initial record by fixing of record ink can be prevented, and the closure member for ink evaporation or ink leakage prevention becomes unnecessary, and it is effective in the ability to also prevent scattering of ink etc.

[0021] Moreover, an ink-jet recording head is more maintainable in the good state over a long period of time by connoting an ink-jet recording head by the packing material, and filling up inert gas with the ratio of 80% or more of abbreviation into the closed space by which the endocyst was carried out.

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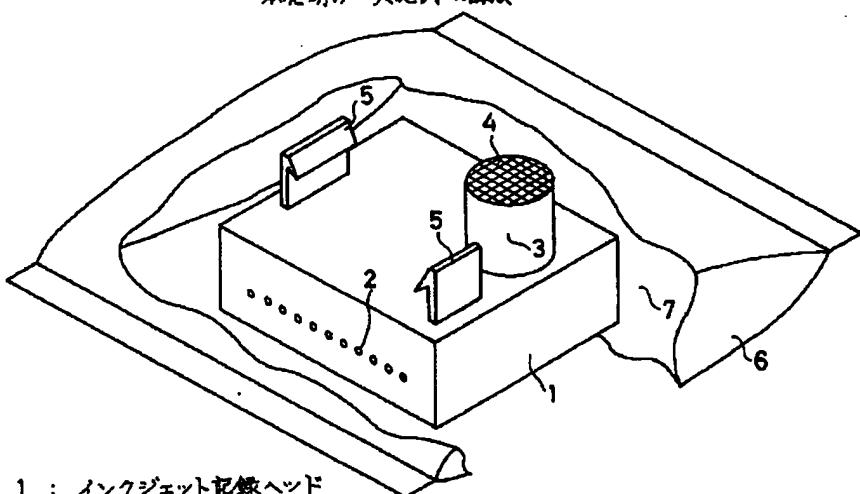
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**DRAWINGS**

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**[Drawing 1]**

本発明の一実施例の構成



1 : インクジェット記録ヘッド  
6 : 包装材  
7 : 気体(ガス)

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[Translation done.]